AQA GCSE Chemistry | 8462

SPECIFICATION POINT 4.8.2.1

Test for hydrogen

Mark schemes and examiner comments

Tier	**Higher**
Question groups	**1**
Available paper years	**2023–2023**

Using this booklet

1. Booklet answer numbers match the question booklet.
2. Use the original question number within marking tables.
3. Examiner comments are included where available.

Name: _____ **Date:** _____

Where a precise marking extract is unavailable, the full source document is included in an appendix. Any missing mark scheme is explicitly identified.

4.8.2.1 Test for hydrogen

Answer 01 · Mark scheme

June 2023 | 8462/2H | Original Q1

Question 1

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.1	to reduce the escape of gas		1	AO3 4.6.1.1 RPA5

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.2	(mean rate =) $\frac{0.78 + 0.81 + 0.81}{3}$	allow $\frac{0.78 + 0.81 + 0.68 + 0.81}{4}$	1	AO3
	0.80 (cm^3/s)	= 0.77 (cm^3/ s) for **1** mark	1	AO2
	$0.80 = \frac{20}{\text{mean time taken}}$	allow correct use of incorrectly determined mean rate	1	AO2
	(mean time taken =) $\frac{20}{0.80}$		1	AO2
	= 25 (s)		1	AO2 4.6.1.1 RPA5
	alternative approach: $0.78 = \frac{20}{\text{time}}$ **or** $0.81 = \frac{20}{\text{time}}$ (1)			
	(trial 1 time = $\frac{20}{0.78}$ =) 25.6 (1)			
	(trial 2 and 4 time = $\frac{20}{0.81}$ =) 24.7 (1)			

4.8.2.1 Test for hydrogen

Answer 01 · Mark scheme June 2023 | 8462/2H | Original Q1

	(mean time =) $\frac{25.6 + (2 \times 24.7)}{3}$ (1) = 25 (s) (1)	allow correct use of incorrectly determined value(s) for time allow $\frac{25.6 + 29.4 + (2 \times 24.7)}{4}$ = 26.1 (s) for **1** mark		

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.3	use a lower temperature use sulfuric acid of a lower concentration		1 1	AO1 4.6.1.2 RPA5

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.4	(test) burning / lit splint (result) burns with a (squeaky) pop sound	MP2 is dependent upon MP1 being awarded allow flame do **not** accept glowing splint allow pops	 1 1	AO1 4.8.2.1

Total Question 1	**10**

4.8.2.1 Test for hydrogen

Answer 01 · Examiner comments June 2023 | 8462/2H | Original Q1

Question 1 (standard demand)

01.1 Fewer than a quarter of students scored a mark here, with most suggesting incorrectly that no gas at all would escape. The idea of minimising escape was key to gaining the mark.

01.2 The vast majority of students used the main approach on the mark scheme. Around three-quarters of students scored all the marks. Of those who didn't, the majority scored 4 marks by failing to discard the anomalous result in MP1. Weaker responses typically calculated the mean rate of 0.80 cm^3/s but were able to take the process further and gained two marks.

01.3 This closed question was answered completely correctly by two-thirds of students, whilst more than 80% scored one mark. Of these, there was usually a conflict between a factor which would speed the reaction up and one which would slow it down.

01.4 Around three-quarters of the students gained both marks. Uncreditworthy responses usually included the squeaky pop test as a description of the test without reference to flames or burning splints, or described the use of a glowing splint.